

*DeKeyser, et al. v. Waupaca Foundry, Inc.*  
USDC E.D. Wisconsin Case No. 08-CV-488

## **EXHIBIT D**

Attached to the 6/15/18 Declaration of Paul Benson  
in Support of Defendant's Motion *in Limine* to  
Exclude the Report and Opinions of Dr. Kenneth Rosenman

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF WISCONSIN  
GREEN BAY DIVISION

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Ryan DeKeyser, Thomas Cooper, Harley Granius,  
and Carlo Lantz, on behalf of themselves and others  
similarly situated,

Case No. 1:08-cv-488 (WCG)

Plaintiffs,

vs.

ThyssenKrupp Waupaca, Inc. d/b/a Waupaca  
Foundry, Inc.,

Defendant.

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**Expert Report of Mark A. Roberts, M.D., PH.D., F.A.C.O.E.M.**

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**Qualifications**

**Employment**

I am a Principal Scientist and Director of the Center for Occupational and Environmental Health for Exponent, a scientific research and consulting company headquartered in Menlo Park, California. I work out of the Exponent office in Chicago, Illinois. Exponent charges \$485 per hour for my time.

**Educational Background and Professional Experience**

I earned a Master's degree in Education in 1972, an M.P.H. in Epidemiology and Biostatistics in 1974, and a Ph.D. in Epidemiology and Biostatistics in 1979. I completed medical school in 1986, earning an M.D. from the College of Medicine, University of Oklahoma. I completed my internship in Family Medicine in 1987, and a residency/fellowship in Occupational and Environmental Medicine in 1990. I am a Fellow of the American College of Occupational and Environmental Medicine. I have an unrestricted license to practice medicine in Oklahoma, Wisconsin, and Illinois. In addition to my employment experience, I am a past member (2000–2011) of the Board of Directors for the American College of Occupational and Environmental Medicine in Arlington Heights, Illinois. I have been a member of the Board of Directors of Vysis, Inc. in Downers Grove, Illinois; and the Board of Scientific Counselors for the Agency for Toxic Substances and Disease Registry in Atlanta, Georgia. I am an elected member of the

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Board of Directors, Chicago Section, American Industrial Hygiene Association and Co-Chair of the Foundations course for the American College of Occupational and Environmental Medicine, member of the Residency Advisory Committee, University of Illinois at Chicago, Occupational Medicine Residency Program, Chicago, Illinois and member of the Board of Governors, Central States Occupational & Environmental Health Association, Chicago. In addition, I have served as an active participant on numerous state and national professional committees.

I have worked at Exponent since November of 2003. Prior to working at Exponent, I held a series of positions with advancing responsibility in the areas of public health, occupational medicine, and academia. I was employed at the Oklahoma State Department of Health from 1972 to 1990 and held a series of positions culminating in my appointment as the State Epidemiologist, a position that I held from 1979 to 1982, followed by the position of Consulting Medical/Environmental Epidemiologist from 1983 to 1990. In both of these capacities, I directed epidemiologic investigations on a broad range of health concerns, from food-borne illness outbreaks to cancer clusters. I was a faculty member of the Department of Preventive Medicine at the Medical College of Wisconsin in Milwaukee, Wisconsin from 1990 to 1997, and I completed my tenure as Associate Professor and Acting Chairman of the Department. I have also served as Corporate Medical Director for several global companies. While on faculty at the Medical College of Wisconsin, I was also part-time Medical Director for Wisconsin Centrifugal Foundry, Miller Brewery, Harley-Davidson, and GE Medical Systems. In each of these positions, I supervised the health monitoring programs, both company-mandated and required by the Occupational Safety and Health Administration (OSHA), in addition to the day-to-day clinical aspects of the employee health service. My responsibilities included biological surveillance of employee population as well as worksite reviews and inspections.

## **Materials Relied Upon**

Among the materials that I relied upon in performing my work in this matter were the following:

- Deposition transcript of Bryant Esch 3/10/09 and Esch Ex. 12-15
- Deposition transcript of Joey Leonard 2/3/09 and Leonard Ex. 4-8
- Plant Drawings, Bate Nos. TKW0000001 – TKW0000003
- Transcript of Status Conference 7/30/09
- Document #141 Defendant's Memorandum re: Case Management Response
- Document # 134 Defendant's Case Management Report
- Document # 137 Plaintiffs' Case Management Report
- Document # 138 Plaintiffs' Memorandum re: Case Management
- Document # 139 Affidavit of Joseph Snodgrass and exhibits
- Jennifer Lurken Affidavit re: Summary Judgment , Material Safety Data Sheets
- Medical files for 82 Opt-Ins at Plants 2 & 3; Bate Nos. TKW0410524 – TKW0431495 (Vol. TKW071)

- Medical files excerpts for all employees at Plants 2 & 3; Bate Nos. TKW0430602 – TKW0486760 (Vol. TKW073)
- Excel exported spreadsheet of Doc ID, Bate Range & Folder Field for documents contained on CD Vol. TKW071
- Excel exported spreadsheet of Doc ID, Bate Range & Folder Field for documents contained on CD Vol. TKW073
- 10/3/11 Expert Reports of Eugene Ruenger, William Nassetta and Kenneth Rosenman
- 12/16/11 Deposition transcript of Eugene Ruenger
- Plaintiffs' Expert Eugene Ruenger Work Papers PL\_Ex-RUENGER0001-0033
- CD of Eugene Ruenger Reliance Materials per 12/16/11 Ruenger Dep. Ex. 2
- Attachment A of Rosenman Reliance Materials
- Attachment B of Rosenman Reliance Materials on CD
- Rosenman Reliance Materials; Bates Nos. PLF\_Ex-ROSENMAN0001 – PLF\_Ex-ROSENMAN0038
- CD of Witness files per Dr. Kenneth Rosenman Witness Reference in Report 1/6/12
- Nassetta Reliance Materials 1/4/12; Bates Nos. PLF\_Ex-NASSETTA0001 – PLF\_Ex-NASSETTA0004
- Nassetta Reliance Materials 1/4/12 Attachment A with copies of materials referenced in same (Swanson 12/18/09 Aff. Ex. E, F, & I)
- Nassetta Reliance Materials 1/4/12 Attachment B with copy of TKW produced materials listed in document
- 1/11/12 Deposition transcript of Plaintiff's Expert William Nassetta
- Medical records-Complete employee health records from the ThyssenKrupp Waupaca Plants 2-3 that Dr. Rosenman referred to in his report
- Prior declarations of Dr. Mark Roberts dated 10/19/2009 and 2/22/2010

Specifically, the depositions of Drs. Ruenger and Nassetta were extremely helpful in the formulation of my opinions in this case to the extent they are responsive to their reports. It was often not apparent from their written reports what the bases for their opinions were and, in some instances, exactly what opinions they were offering. I had hoped counsel for ThyssenKrupp Waupaca could also depose Dr. Rosenman for the same reasons. Because that did not occur before the due date for this report, I reserve the right to amend and/or supplement these opinions based upon whatever testimony Dr. Rosenman later gives in this case that is germane to the opinions I am offering here.

I have submitted two declarations previously in this case. I continue to hold the opinions expressed in those documents to a reasonable degree of professional certainty.

## Overview of Other Expert Reports

In reviewing the materials in this case, it is evident that the opinions of Drs. Rosenman and Nassetta, as well as the analysis by Dr. Ruenger, have gone beyond the key question of whether the donning and doffing of uniforms and showering at the ThyssenKrupp Waupaca foundries are required by the nature of the work and therefore compensable. It is important to understand that silica has many different forms, both crystalline as well as amorphous. The physical qualities of silica sand, such as particle size, change in the course of its use. In addition, there should be a clear understanding of differential workplace exposures by industry. For example, foundry processes are different from mining operations, construction operations and concrete cutting operations. Finally, within any single workplace there will likely be varying exposures given particular work tasks and responsibilities.

Dr. Nassetta indicates in his report that he relied upon the assessment of Dr. Rosenman and Dr. Ruenger in developing his opinions, both of which have serious weaknesses. Using the notes produced by Dr. Rosenman and comparing them to the contents of the complete employee health files that I reviewed, Dr. Rosenman has made incorrect statements regarding the pulmonary status of employees at ThyssenKrupp Waupaca Plants 2-3 that are based on inadequate reviews of the employee health records. In addition, it appears that his analysis failed to consider employees' complete medical and work histories which are critical to a valid exposure assessment in this case. Dr. Ruenger's analysis was found by Mr. Mosher to be incorrect in numerous respects, including approximately 70% of his calculations of silica air levels. Thus, it is important not to rely on these opinions in assessing the work environment of ThyssenKrupp Waupaca Plants 2-3.

## Role of Epidemiology and Occupational Medicine in the Evaluation of a Workplace

Epidemiology is the study of the distribution and determinants of health events in populations. The key elements of epidemiology are comparisons of health outcomes and exposures between two or more populations (which allow for the calculation of relative risk estimates) and the careful evaluation of underlying determinants that may influence the health outcome(s) under study (bias and confounding). Application of epidemiological methods to the study of workforces is a routine activity. The key component to these methods is the comparison of what health outcomes are observed in the workforce versus what a scientist would expect if there is no association between a disease and the workplace. In addition, epidemiological studies of workforces can allow the identification of gradient responses to the intensity, duration and frequency of exposures. Occupational medicine physicians, like me, use these epidemiological techniques, along with a broad range of public health tools, in assessing the health of workforces and applying preventive medicine principles.

Occupational Medicine is a subspecialty of Preventive Medicine and focuses on occupational health. Its primary role is to provide organizations and employees with health recommendations aimed at achieving the highest standards of health and safety in the workplace. Occupational medicine physicians must have extensive knowledge and expertise of clinical medicine and must aim to protect employees in the work environment from health risks attributed to harmful

exposures. Ultimately, occupational medicine physicians aim to ensure the best well-being possible for all workers in all occupations. Protecting the health of workers is achieved through a combination of substitution of hazardous compounds or chemicals, engineering controls, personal protection equipment, and administrative controls.

I have drawn upon this training and experience as I evaluated plant health practices at the ThyssenKrupp Waupaca Plants 2-3, as I observed the plant layout and operation first hand on two occasions, evaluated the reports of Drs. Rosenman, Nassetta and Ruenger, and applied the current, peer reviewed published literature.

## **Silica in the Environment and the Workplace**

Silica ( $\text{SiO}_2$ ) is a chemical compound consisting of oxygen and silicon atoms. Oxygen and silicon are the most and second most abundant elements in the Earth's crust, respectively, and silica sand is the most prevalent form of silica found in nature. Silica is either crystalline (the most common form is quartz) or non-crystalline (amorphous) depending on temperature and pressure exposures (BIM 1992).

Crystalline silica is found in all soils (BIM 1992), and is also ubiquitous in the ambient air, from sources such as paved and unpaved roads, wind-blown soil, and farming activities (WIDNR 2011). Every human being is exposed to silica in the ambient air we breathe (U.S. EPA 1996) and the state of California has actually set an ambient air standard. Obviously, the small doses of silica generally found in the ambient air do not cause harm to humans.

Crystalline silica has been widely used for decades in many occupational settings including mining (e.g., rock quarries, sand/gravel mining); road building, construction (masonry, stonework, concrete work); various manufacturing industries (glass, brick, and ceramics/pottery where fine powdered sand or quartz are used); and foundries (molds and cores for metal casting production) (NTP 2011, WIDNR 2011).

## **Silicosis**

At sufficiently high levels, silica can affect the human body in several ways. Principally, it is fibrogenic (i.e., promoting the development of fibers) in the lung, causing silicosis. However, the size and surface area of particles are important determinants of their potential toxicity. Silica dusts with a particle size smaller than  $10\text{ }\mu\text{m}$  in diameter are the fraction considered most likely to be damaging to the lung. This small-diameter fraction of a dust cloud which penetrates to the alveolar space (air sacs) of the lung is referred to as the respirable fraction, and cannot be seen by the naked eye in ordinary lighting. The respirable fraction must be measured to assess the disease risk from dusts containing silica (NIOSH 2002).

The size of silica particles is important given that the smaller particles are most likely to penetrate the lungs, whereas the larger particles ( $>10\text{ }\mu\text{m}$ ) are not likely to reach the active part of the lung and can be removed by the protective mechanisms of the lungs. Inhalation of sufficiently high levels of respirable silica can lead to lung disease ranging from mild, non-disabling pulmonary disease up to more severe forms. Silica has been classified as a carcinogen by the International Agency for Research on Cancer (IARC 1997), but the question of whether a



person must have pre-existing silica scarring (or silicosis) before lung and other cancers can be attributed to silica has been debated for a considerable amount of time (Checkoway 2000). The outcome of the debate remains unresolved. The major factors that influence the potential disease outcome associated with exposure to respirable silica are intensity, duration, and frequency. Not all exposures to dust or silica result in silicosis or lung disease, as evidenced by the observation that we all do not develop silica-related lung disease, even though there is a background silica level in the ambient air (U.S. EPA 1996).

## **A Threshold for Silica Exposure**

A review of the broad range of epidemiologic and toxicological studies of silica suggests that a threshold exists (Cox et al. 2011). That is, a relation between silica exposure and increased lung disease exists only when exposures exceed a particular level. One author concludes that a threshold may exist at a level well above the current OSHA PEL of  $0.1 \text{ mg/m}^3$  (Cox et al. 2011). Authors from the California Department of Toxic Substance Control also concluded that a threshold exists below which crystalline silica does not produce fibrotic or silicotic changes (Klein and Christopher 1995). Dr. Rosenman has published articles endeavoring to show that exposures below that current PEL cause pulmonary diseases. The point is that clearly there are levels of silica exposure that are safe. The scientific debate is over what those levels are.

In addition, plaintiffs' experts have opined that every exposure to silica in the workplace or otherwise increases a person's risk of developing silica or silica related disease. Pulmonary physiology does not support such an argument. The respiratory system has multiple defense mechanisms to clear low levels of silica that we breathe in every day. Similarly, plaintiffs' experts analogize other chemicals (e.g., asbestos and beryllium) which at low levels increase ones risk. These analogies are inappropriate and are not supported in the medical and scientific literature.

## **Regulatory Aspects of the Workplace**

The Occupational Safety and Health Act of 1970 (29 U.S.C. §651 et seq.) created both NIOSH and OSHA. OSHA is part of the U.S. Department of Labor and is responsible for developing and enforcing workplace safety and health regulations. NIOSH is part of the Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services. NIOSH is an agency established to provide research, information, education, and training in the field of occupational safety and health. Information pertaining to the specific responsibilities of NIOSH are found in Section 22 of the Occupational Safety and Health Act of 1970 (29 CFR § 671).

One of the roles of NIOSH is to incorporate the findings from occupational health studies to make informed workplace recommendations. NIOSH recommendations are considered in part by OSHA in developing and implementing workplace regulations.

Regulatory responsibility for workplace health and safety is the responsibility of OSHA. From its inception in 1970, OSHA has adopted and/or has set permissible exposure limits (PELs) for various workplace chemicals and metals. OSHA mandates specific actions depending on the exposure (based on the PEL) and the work environment. OSHA sets standards when testing programs are to be initiated based on workplace processes and specific chemicals or metals.

Workplace air sampling and process evaluation indicate that ThyssenKrupp Waupaca Plants 2-3 are not required by OSHA to institute a lead prevention program.

### **OSHA Lead Program Requirement**

Exposure to lead occurs in at least 120 different occupations, including primary and secondary lead smelting, lead storage battery manufacturing, lead pigment manufacturing and use, solder manufacturing and use, shipbuilding and ship repairing, auto manufacturing, and printing.

The OSHA lead standard sets a PEL of 50 micrograms of lead per cubic meter of air ( $50 \mu\text{g}/\text{m}^3$ ), as averaged over an 8-hour period and a monitoring program with increased compliance requirements when monitoring indicates that an employee is exposed above the PEL >30 days. The lead standard establishes an action level of 30 micrograms per cubic meter of air ( $30 \mu\text{g}/\text{m}^3$ ), time weighted average, based on an 8-hour work-day. The action level initiates several requirements of the standard, such as exposure monitoring, medical surveillance, and training and education. Under the lead standard, training programs include an emphasis on personal hygiene habits (e.g., hand hygiene and showering before exiting the worksite). The lead standard also requires that employees be provided with protective clothing and, whenever necessary, with respiratory protection in accordance with 29 CFR 1910.134.

During my on-site visit to ThyssenKrupp Waupaca Plants 2-3 in January of 2012, all records reviewed, dated back to 1967, indicated that regulatory-driven employee health screenings were undertaken and became standardized as OSHA regulations took shape after 1970 (lead, hearing, and respiratory programs). This was important to me because it demonstrates the efforts of ThyssenKrupp Waupaca Plants 2-3 to meet OSHA standards.

### **OSHA Respirator Program**

Any employer who requires or permits employees to wear a respirator must have a written respiratory protection program. This is required by OSHA in its respiratory protection standard (29 CFR 1910.134). The written respirator program establishes standard operating procedures concerning the use and maintenance of respiratory equipment. In addition to having such a written program, the employer must also be able to demonstrate that the program is enforced and updated as necessary. Only those individuals who are medically eligible to wear respiratory protective equipment are allowed to use a respirator. Initially, before being issued one, an employee will receive pertinent tests to evaluate medical and physical conditions, and annually thereafter. Employees being evaluated for use of a respirator are also evaluated for their ability to safely wear a respirator. The medical portion of the evaluation is done under the direction of a clinical physician. A medical history questionnaire is used to collect pertinent historical information. The evaluating physician will then determine if the employee has a medical condition that may influence his or her ability to wear a respirator effectively and will subsequently require a more in-depth evaluation.

In reviewing the employee health records at ThyssenKrupp Waupaca Plants 2-3 from which Dr. Rosenman's information appeared to be obtained, the files indicated that ThyssenKrupp Waupaca did indeed have an ongoing respirator program with specific physician support that was fully in compliance with all applicable rules and regulations.



## OSHA Requirements for Showering at the Worksite

OSHA requires shower facilities under specific circumstances when certain chemicals and/or minerals are present at levels determined by OSHA to be of concern. The most frequently referenced chemical of this type is lead. OSHA requires attention by the employer to hygiene facilities when addressing lead exposures. In the construction trades, when employee exposures *exceed the PEL* with a sufficient level of frequency, intensity and duration, the *employer must provide* employees with suitable shower facilities, where feasible, so that exposed employees can remove accumulated lead dust from their skin and hair prior to leaving the worksite. Where shower facilities are available, employees must shower at the end of the work shift before changing into their street clothes and leaving the worksite. Showers must be equipped with hot and cold water in accordance with 29 CFR 1926.51(f)(4)(iv).

Two key points are clear from this requirement: 1) the requirement is metal specific (in this case, specific to lead exposure), and 2), the exposures must exceed the PEL with sufficient frequency, intensity and duration to make showering a requirement (> 30 days). Of course, a person properly wearing an approved respirator would not be considered "exposed." In those situations where OSHA has deemed it necessary to shower after potentially being exposed to a chemical exceeding the permissible exposure level, the agency has made a clear statement about showering after work. In addressing workplace silica issues, OSHA has chosen not to make the statement that one "must shower" or change clothes at the workplace.

OSHA has a responsibility to meld science, industry standards, economics and feasibility into safety and health standards. Dr. Nassetta's emphasis on the "political" pressures or influences is one way of describing the process that has developed based on the legal system in the United States. Granted the legal system is slow, but it has developed as the forum for the resolution of disputes about science and its application.

In situations where OSHA has not adopted a specific safety and health standard, Section 5(a)(1), the general duty clause of the Occupational Safety and Health Act of 1970 (OSH Act) may be applicable. Section 5(a)(1) states, ***"Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm to his employees."***

*"A consensus standard may serve as evidence of industry recognition of a hazard. However, with respect to eyewash and shower facilities, OSHA would issue a citation under 29 CFR 1910.151(c), if the Agency concluded that the facilities were unsuitable in a particular situation. OSHA does not issue a citation pursuant to the general duty clause where an existing standard addresses the relevant hazard."*

[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=24288](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=24288)

A search of the OSHA database did not reveal that the agency has issued citations to any foundry for failing to have shower facilities, or for a foundry failing to require that their employees change clothes and/or shower after the completion of their work shift. In my review of

ThyssenKrupp Waupaca records, I did not find any OSHA citations related to showering or clothes changing.

## OSHA Actions Relative to Silica

OSHA has an established a silica PEL of  $0.1 \text{ mg/m}^3$ , which is the maximum amount of crystalline silica to which workers may be exposed during an 8-hour work shift (29 CFR 1926.55, 1910.1000). OSHA also requires hazard communication training for workers exposed to crystalline silica, and requires a respirator program until engineering controls are implemented. Additionally, OSHA has a National Emphasis Program (NEP) for Crystalline Silica exposure to identify, reduce, and eliminate health hazards associated with occupational exposures. The protection of employees from pulmonary disease associated with silica exposure has been a key initiative of OSHA for a number of years as is evidenced by the plethora of information that has been produced by OSHA and NIOSH. The following is a clear example of the emphasis that has been placed on silica in the workplace.

I could not find an OSHA document before October 1978 giving guidance to field investigators on silica. OSHA issued Program Directive #300-3 in [in 1978] that provided guidelines to field investigators to be followed in OSHA inspections. Specifically, in the area of personal hygiene it states the following:

*"All food, beverages, tobacco products, nonfood chewing products and unapplied cosmetics should be discouraged in work areas.*

*Employers shall provide an adequate number of lavatories, maintained and provided with soap and towels.*

*Where employees wear protective clothing or equipment, or both, in-plant change rooms should be provided in accordance with 1910.141(e)."*

[http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=DIRECTIVES&p\\_id=1579](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1579)

Showering or shower facilities were not addressed in this important guidance directive, giving a clear indication that showering was not mandated in 1978. Remarkably, there appears to be no new guidance statements regarding showering by OSHA. Furthermore, my review of OSHA citations and regulatory letters during the time of the Special Emphasis Programs (SEP) on Silica, which was implemented in 1996, and the National Emphasis Program (NEP) on Silica, which was implemented in 2008, have not provided any indication that showering in foundries was mandatory.

## Background Information on Foundry Operations

The history of the manufacture of metal castings has diverged into a broad array of processes and products. All of these processes have unique qualities and therefore present a wide array of potential health issues (e.g., processes from small batch specialty foundries to high production operations). In addition, there are various metal alloys used to produce castings that include, but are not limited to, steel, iron, aluminum, copper, zinc, lead, and specialty metals. The method of

forming the metal into the desired shape also varies from sand molds to permanent molds made from iron. Finally, each process changes with time; thus, an evaluation of workplace health issues is dynamic, dependent on the type of foundry, its processes, systems, and customer demands.

## **Background Information Silica in Foundry Operations**

The first step in metal casting involves the creation of a mold into which the molten metal will be poured and cooled. The materials used to make the molds depend on the type of metal being cast and the desired shape of the final product. Sand is the most common molding material; however, metals, binding materials, and other compounds may also be used. The molding sand is a mixture of sand, clay, carbonaceous material, binders and water. The sand mixture is packed around a pattern of the metal piece and allowed to harden. The mold is carefully removed from the pattern and prepared for the molten metal. At the ThyssenKrupp Waupaca foundries, sand molds are used only once, then the sand is recycled and reconditioned in order to form another mold.

Exposure to freshly crushed or ground silica, such as that experienced by sandblasters, rock drillers, and silica flour millers, may be more toxic *in vivo* than exposure to 'aged dust' of similar structure and particle size. Castranova et al. (1996) conducted an experimental study that showed a significantly higher number of total cells, red blood cells, lymphocytes, granulocytes, acellular lavage protein, and phospholipid levels in mice exposed to recently cleaved silica compared to mice that had inhaled aged dust in storage for 2 months prior to use. The authors also reported a greater activation of alveolar macrophages that subsequently resulted in a greater induction of nitric oxide synthase in mice exposed to freshly cleaved silica compared to mice exposed to aged dust. They concluded that "...inhalation of fresh silica causes greater toxic and inflammatory pulmonary reactions than aged silica. These results may be relevant to occupational settings such as sandblasting, rock drilling, and milling, where workers are exposed to freshly fractured silica." (Castranova et al. 1996, WHO 2000).

Freshly cleaved silica, which occurs during sandblasting and rock drilling, may contain a higher percentage of free radicals compared to aged silica and therefore may produce a greater inflammatory reaction and may potentially result in more cell and/or DNA impairment (Greenberg et al. 2007). This observation is borne out when the epidemiology of silica related disease is reviewed by occupational groups. It is clear that those occupational groups that are more likely to be exposed to "fresh silica" are at increased risk and have been the subject of the majority of the studies in this area.

This observation becomes important in considering that the sand used in foundries such as ThyssenKrupp Waupaca Plants 2-3 reuse their sand in the molding process. Thus, to the extent employees at ThyssenKrupp Waupaca Plants 2-3 are exposed to silica, it is to the "aged dust" form that is less toxic than the fresh silica found in other industries and processes.

## **NIOSH, OSHA, and Foundries**

Application of science in a workplace such as a foundry requires careful adherence to basic principles of science, medicine, epidemiology, and toxicology. There are many potentially

hazardous chemicals and compounds found in homes and workplaces. In the evaluation of any exposure, one must account for exposure frequency, duration, and intensity. These are the key factors that OSHA uses for PELs in the workplace setting and they are the regulatory standard that companies must comply with.

Drs. Rosenman and Nassetta have highlighted the fact that many chemicals ostensibly found in the foundry environment have been classified as hazardous (e.g., silica, lead, polycyclic aromatic hydrocarbons (PAHs)); yet, they fail to acknowledge the key tenets of toxicology which have been captured by the phrase “the dose makes the poison” (*Paracelsus c. 1493-1541*). Rephrasing this concept into more scientifically rigorous terms indicates that one must consider the intensity, duration, and frequency of an exposure before pronouncing that someone has had an exposure that is potentially disease-producing (Heinzow). In addition, both Drs. Rosenman and Nassetta fail to consider that ThyssenKrupp Waupaca Plants 2-3 have OSHA-compliant monitoring programs in place and have had these programs since OSHA requirements were instituted. It is documented in the employee health records that ThyssenKrupp Waupaca has a sophisticated system in place to respond appropriately when workplace monitoring detects the possibility of these chemicals exceeding the OSHA PEL. This process includes notifying employees and taking the appropriate corrective action(s). The single OSHA citation that Dr. Nassetta mentioned in his report is being contested by ThyssenKrupp Waupaca because of some issues of interpretation, but more importantly, the citation indicates OSHA’s presence in the facility and the interaction between the regulators and the health and safety professionals at the plants. As is the case in many OSHA citations when there is a difference of opinion, the company involved starts remediating the source of the citation but also initiates a formal process to resolve disagreements regarding the citation. OSHA inspectors have been in ThyssenKrupp Waupaca Plants 2-3 a total of 9 times since 2004 for a variety of reasons, and none of these interactions have resulted in a citation, warning, or issue involving employees showering and/or changing clothes.

## **Review of Employee Health Services at ThyssenKrupp Waupaca Plants 2-3**

My review of the employees’ medical records mentioned by name in Dr. Rosenman’s report identified direct medical review of regulatory-required examinations and/or programs. The records indicate that ThyssenKrupp Waupaca utilized in-plant medical as well as community physicians to support their programs. The involvement of physicians with NIOSH-based training to review chest x-rays for the indications of pneumoconiosis (certified “B” Readers) in their medical surveillance program is indicative of compliance. Contrary to Dr. Rosenman’s opinions, ThyssenKrupp Waupaca does indeed have medical support provided by a clinical physician through an occupational health service provider. Furthermore, on-site occupational health nurses are available. Of note, the on-site health staff addresses the occurrence of all workplace health issues and manages health programs including respirator fit testing, lead surveillance, hearing conservation, and workplace assessment.

## **Employee Health Information**

Dr. Rosenman described a series of pulmonary (lung) tests and x-ray descriptions as indicators of the health status of employees (past and present) from ThyssenKrupp Waupaca Plants 2-3

without clearly discussing the limitations of his effort or the context in which his observations were made. First, ThyssenKrupp Waupaca Plants 2-3 employed an estimated 6,000 people over the 50+ years the plants have been in operation with a demographic and risk profile mirroring that of the general population of the surrounding community. For example, if the surrounding community has a high rate of smoking, it is reasonable to assume that the ThyssenKrupp Waupaca workforce will also have a similarly high rate. Hence, before discussing employee-specific information, I believe it is helpful to have some understanding of the health of the community surrounding ThyssenKrupp Waupaca Plants 2-3 and to use this information to assist in evaluating the overall health status of these employees.

## Waupaca County Health Data

A review of Waupaca County health data allows a realistic expectation of which health conditions we would observe in the ThyssenKrupp Waupaca foundries given comparable populations. The Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute recently published their *County Health Rankings* in 2011 to provide information on the overall health status of all counties in the state of Wisconsin. "Health Outcomes" was the primary ranking measure used to determine overall health status, whereby a ranking of 1 was considered the healthiest county in Wisconsin and 72 was considered the least healthy county. Waupaca, Wisconsin ranked 53 out of 72 overall. In health behaviors specifically, which included adult smoking (i.e., the proportion of adults reportedly smoking  $\geq 100$  cigarettes and currently smoking) and adult obesity (i.e., the proportion of adults that reported having a body mass index (BMI)  $\geq 30$ ), ranked 56 out of 72. Additional data from the *County Health Rankings* indicated that the period prevalence of adult smoking in Waupaca County from 2003 to 2009 was 24% (95% CI: 19-30%) compared to 21% in the state of Wisconsin and 15% at the 90th percentile using the national benchmark. Similar statistics were observed for adult obesity, whereby the period prevalence in 2008 in Waupaca County was 29% (95% CI: 24-33%) compared to 28% in the state of Wisconsin and 25% at the 90<sup>th</sup> percentile for the national benchmark (County Health Rankings 2011).

It is important to note, however, that several health risk factors were more, if not equally, prevalent among persons living in Waupaca County compared to the overall Wisconsin population, including obesity, overweight (BMI  $\geq 25$ ), high cholesterol, lack of physical activity/exercise, smoking, and consuming less than 5 servings per day of fruits or vegetables (of note, prevalence of high blood pressure and diabetes were slightly lower in Waupaca County than in Wisconsin; data comparisons were only available in the 2005 Department of Health Services (DHS) report).

Data on various respiratory conditions in Waupaca County were also examined, including tuberculosis (TB), chronic obstructive pulmonary disease (COPD), and chronic bronchitis and emphysema. According to the Wisconsin DHS, there were zero cases of tuberculosis in the County of Waupaca from 2003 to 2010 (WIDHS 2011a). The rate of TB in the broader area of the northeastern region of Wisconsin, where Waupaca is located, in 2010 was 0.73 per 100,000 compared to rates of 1.19 and 1.25 per 100,000 in the southern and southeastern regions of the state, respectively (of note, the northern and western regions of the state had rates of TB that were lower than that of northeastern Wisconsin).



Aggregated data on COPD from the Wisconsin Interactive Statistics on Health (WISH) showed a parallel increase in age-adjusted rates of COPD in Waupaca County and Wisconsin from 1996-1998 to 1999-2001 (Waupaca County: 41 to 56 per 100,000; Wisconsin: 35 to 39 per 100,000) and a decrease from 1999-2001 to 2002-2004 (Waupaca County: 56 to 51 per 100,000; Wisconsin: 39 to 38 per 100,000). Hence, trends of COPD rates were higher in Waupaca County than those occurring in the state of Wisconsin from 1996 to 2004 (WIDHS 2011b).

In a 2011 report by the American Lung Association on the estimated prevalence and incidence of lung disease, data from the 2009 National Health Interview Survey were applied to county population estimates to calculate the prevalence of chronic bronchitis and emphysema among adults who were greater than 18 years of age. The data indicated that the prevalence of both chronic bronchitis and emphysema were comparable to the prevalence of these diseases in all other Wisconsin counties combined (chronic bronchitis: 3.62% vs. 3.38%, respectively; emphysema: 2.00% vs. 1.71%, respectively) (ALA 2011).

In summary, the observed prevalence and incidence estimates of COPD, chronic bronchitis, and emphysema in Waupaca County are comparable to those observed in the state of Wisconsin as a whole. No cases of TB were reported in Waupaca County from 2003-2010. Available data on the prevalence of several important risk factors such as smoking was slightly elevated in Waupaca County compared to the state of Wisconsin. Given these health indicators, there is no indication in the county based statistics that the foundry operations have adversely effected the population of Waupaca County.

### **Employee-Specific Information**

Dr. Rosenman has made an attempt to assess the health of the workforce of ThyssenKrupp Waupaca Plants 2-3 by having information pulled from employee health records by unidentified persons using some undisclosed criteria. His assessment and opinions must be evaluated considering the lack of stated criteria, lack of a well-described methodology for categorization, and absence of a comprehensive review.

As an occupational medicine physician, I would agree that it is very important to look at the health status of this work force and focus on cases of lung disease. However, having a limited amount of information extracted by presumably non-medical personnel from an employee health record is an incomplete manner of record review. As Dr. Rosenman should be aware, important pieces of information are often less than obvious to the untrained reviewer. My review of more than 30 complete employee medical files that Dr. Rosenman identified by name as having pulmonary disease provided important information that helped me better understand the health status of these employees. There were multiple "B" readings that were interpreted differently that Dr. Rosenman described. A review of the pulmonary function studies identified chronic lung conditions associated with smoking as well as other conditions that can potentially affect pulmonary testing but are not associated with silica exposures (e.g., sarcoidosis, pre-existing pulmonary conditions). In addition, careful review of the file material on each of these employees did not provide support for many of Dr. Rosenman's clinical opinions. For example, Dr. Rosenman concluded that Mr. Richard Hobson was a "silicosis case;" however, Mr. Hobson's chest x-ray was taken 12 months after he was hired and was characterized by small nodular densities, atelectatic infiltrates, and hilar adenopathy, which was described by



Dr. Allen as consistent with sarcoidosis. Dr. Karnes, a “B” reader, described Mr. Hobson’s chest x-ray which was taken in August 2005 as grossly negative and checked the box indicating that the “film is completely negative.”

At best, I would describe Dr. Rosenman’s observations on the health of the ThyssenKrupp Waupaca employee population as a poorly characterized case series analysis, which in no way proves disease causation when the disease end point is not clearly described in an objective fashion (Checkoway 2004). To begin to explore causation, one would need to conduct an analytic cohort or case-control study involving exposure and outcome data utilizing employees’ medical records as well as other data sources. An investigation like this requires a clear case definition for defining the health outcome and statistical methodology to control for potential confounding from factors such as smoking (Checkoway 2004). Dr. Rosenman does not share his criteria but merely points out broad categories of purported lung conditions.

Dr. Rosenman did not obtain a comprehensive risk profile among the employee population as he solely depended on data retrieved by the unidentified persons. A review of the complete employee health files of the individuals that Dr. Rosenman listed provides a very different picture of their health status than what Dr. Rosenman has opined in his report.

Dr. Rosenman indicated that there were three employees with “silicosis.” A review of these three employees’ health records indicates the following:

- Mr. Robert Heidger’s employee health records provide a clear indication that he has silicosis and had worked at the foundries for 30 + years. A review of his records indicated that he had been consistently included in appropriate health protection programs. Confirmatory diagnostic information is provided in his health file. I note that the results of his pulmonary function testing were surprisingly good.
- Mr. Richard Hobson’s pulmonary status is not as clear cut. He had a diagnosis of sarcoidosis in 1996; a “B” reader reviewed his chest x-ray on 8-16-05 and did not identify him as having pneumoconiosis (silicosis). Mr. Hobson was noted to have changes in his chest x-ray consistent with sarcoidosis (not a recognized silica-related disease). It appears that Mr. Hobson was part of the a number of health screenings over his years of employment that indicated he had a “normal spirometry” and his latest chest x-ray taken 8-16-2005 was described by Dr. Karnes, a “B” reader, as “grossly negative” and scored as “completely negative.”
- Mr. Arthur O’Keefe was evaluated on 8-23-2002 because of abnormalities seen on a chest x-ray that were considered to be consistent with pneumoconiosis. Mr. O’Keefe filed for workers’ compensation and the claim of work-related pneumoconiosis was denied after review by a pulmonary specialist in Milwaukee.

Dr. Rosenman indicated in his report that he identified two workers with “B” readings consistent with silicosis in his review of the selected medical records that he was provided. A review of the complete employee files for these two workers identified the following additional information:

- Mr. Robert Pochinski has worked at the foundries since October of 1976. A chest x-ray taken in January of 1988 was described as being consistent with pneumoconiosis and a B reader report indicated that there were opacities but the form was not completed. His lung's appearance does not appear to have changed and the indications for an old TB infection remain. He is a smoker. Mr. Pochinski has undergone a number of chest x-rays and has not been diagnosed as having silicosis by any treating physician. Dr. Rosenman's opinion does not appear to be based on his review of Mr. Pochinski's entire employee health record.
- Mr. John Kerneen was hired at the foundry in April of 1967. He had a B reader review of chest x-rays taken in 1990 and 1994 which were described as having small opacities suggestive of pneumoconiosis but a follow-up B reader review of a chest x-ray in 2002 was "negative" (no indication pneumoconiosis). Mr. Kerneen had normal pulmonary function testing each year from 2000 until the latest test in 2008.

Dr. Rosenman indicated that 4 employees had chest x-rays "consistent with silicosis." A review of the employee's files found additional information that should be considered before a diagnosis of silicosis is made in these workers:

- Mr. Gary Hoefflerle was hired on August 24, 1987 and an "old granulomatous" disease was described on a chest x-ray taken on August 15, 1987. In 1997 a B reader described Mr. Hoefflerle's condition as "fibrosis not specific to pneumoconiosis, old granulomatous disease." Mr. Hoefflerle is described in the health records as having a 30 pack/year history of smoking.
- Mr. Walter Prill's employee health records indicate that he started work in the foundry in the late 1950s shortly after it opened in 1955. His chest x-ray taken on 6-21-90 was described as having "faint small calcified opacity" that was described as "probably not significant" by the reviewing physician. In May 1990, a notation indicated that Mr. Prill had smoked for "30 years." This is insufficient information to classify Mr. Prill as having a chest x-ray consistent with silicosis.
- Mr. Ralph Stephens' health records indicate that he started work in the foundry in 1968. His chest x-ray was evaluated by a B reader in October of 1994 and a "stable calcified R mid lung nodule and apical densities" were described as "consistent with old inflammatory disease." Mr. Stephens was described as a "smoker x 30 years." Dr. Manier, a "B" reader, noted on 10-12-94 that Mr. Stephens' had a "stable calcified right middle lobe nodule and apical densities consistent with old inflammation." Mr. Stephens' work history spans years of work in a foundry and under a variety of regulatory conditions. It is possible that his early days at the foundry could have resulted in changes in his chest x-ray but that is not the interpretation of the physicians who had responsibility for review of his x-rays.
- Mr. Roland Ziemer started work in the foundry in 1962 and was first described as having "stable" "opacities in the LLL (left lower lobe of the lung)" in 1977. He apparently had a portion of right lower lobe of his lung resected in approximately 1997. There is no indication in the file as to the reason that a portion of his lung was

removed. A chest x-ray take in September of 1999 was described by a B reader as “normal” “no pneumoconiosis found.”

Dr. Rosenman indicates that he has reviewed “chest radiograph reports” and made determinations based on those reports. It is apparent from looking at the complete health record of the employees that there is additional pertinent information such as serial pulmonary function testing and “B” reader descriptions of chest x-rays available but apparently not considered.

Dr. Rosenman made sweeping statements about a larger group of employees that he classified as having “restrictive lung disease” or “obstructive lung disease.” A review of the health records of the employees mentioned by name clearly indicates a diverse group of individuals with multiple risk factors (smoking, obesity, asthma, etc.). Dr. Rosenman’s claims of work-related pulmonary health issues of this workforce are not supported when the health records are reviewed in their entirety. A review of his hand-written notes indicates that Dr. Rosenman found a significant proportion of the workforce at the foundry to be overweight, which is a major risk factor influencing lung function. Dr. Rosenman’s handwritten notes indicate that a BMI was recorded for a large majority of the noted employees, but it is not clear how that information was utilized. A BMI exceeding 30 (indicative of obesity) has been shown to adversely affect pulmonary function (Jones 2006). The smoking prevalence evidenced in the employee health records is remarkable, but unfortunately not much different than the general population in Waupaca County. Again, Dr. Rosenman appears not to have taken this into consideration when he made statements regarding obstructive lung disease among the ThyssenKrupp Waupaca workforce.

Dr. Rosenman’s observations regarding illness in the plant were evidently based on information extracted from the medical files by unidentified personnel, which was not comprehensive. Furthermore, Dr. Rosenman made broad generalizations regarding illnesses “found” in the medical charts. Given his evaluation, which approximates a case series analysis, it is scientifically impossible to conclude that an exposure-disease association exists. Thus, without the existence of an exposure-disease association, no argument for causation can be made. In addition, many of the “diseases” reported were not specific to silica or to the foundry industry but instead are likely related to multiple other causes such as interstitial fibrosis and smoking.

OSHA has an established PEL of  $0.1 \text{ mg/m}^3$  which is the maximum amount of crystalline silica to which workers may be exposed during an 8-hour work shift (29 CFR 1926.55, 1910.1000). OSHA also requires hazard communication training for workers exposed to crystalline silica, and requires a respirator program until engineering controls are implemented. Additionally, OSHA has the NEP for Crystalline Silica exposure to identify, reduce, and eliminate health hazards associated with occupational exposures.

## **Silica Exposure and Other Diseases**

Dr. Rosenman briefly discussed the ongoing research regarding other diseases that may be associated with silica exposure. It is premature to conclude that these observations prove causation. The scientific question regarding whether silica exposure is causally related to renal disease, immunological disorders and autoimmune diseases, rheumatoid arthritis, or systemic lupus erythematosus remains unanswered. WHO concluded that “sufficient epidemiological or toxicological data do not currently exist for quantitative assessment of the exposure-response

relationship for these health effects” (WHO 2000). A perusal of the scientific literature in 2012 indicates that this observation still holds true.

### **Association of Lung Cancer and Fibrotic Changes in the Lung**

The question of the association between silica exposure and the development of lung cancer is still debated. Whether the presence of scar tissue and/or fibrosis is a necessary precursor to the development of lung cancer after silica exposure has not been definitively answered.

Checkoway and Franzblau (2000) discuss some of the difficulties of attribution of lung cancer to silica exposure. A paper by Yu et al 2008 observed that "Fibrotic scars are frequently found in proximity to lung cancer at the time of cancer diagnosis," but the authors make the point that "the nature of the relationship between pulmonary scarring and lung cancer remains uncertain." This study did not differentiate the types of fibrosis, but the point remains that scarring of the lung tissue may be an important precursor to the development of lung cancer. That point is significant when one is evaluating a workplace with a significant number of smokers.

### **Donning and Doffing Uniforms and Showering**

Drs. Rosenman and Nassetta have attempted to use OSHA regulations and directives in a manner that is inconsistent with the agencies' stated regulations and with what their silica programs (SEP and NEP) are intended to do. There is an ongoing discussion regarding the permissible exposure level for silica, as is the case for nearly every chemical or compound that is regulated in the workplace. For some chemicals and compounds, such as lead, OSHA has deemed it appropriate to promulgate regulations that specifically address the need to shower and don/doff uniforms. However, no such requirements have been implemented for silica. Drs. Rosenman and Nassetta have argued that the new silica regulations being considered may include such a provision. The components of a proposed new silica standard have not been released by OSHA for discussion so this is pure speculation on their parts. The process of rulemaking by OSHA requires a vigorous discussion of all aspects of a new regulation. Thus, even if a new silica standard is released and that standard includes provisions regarding showering and/or clothes changing, there is no guarantee that the standard that is eventually adopted will include those provisions or that those provisions will be mandatory.

### **Take-Home Exposures**

The key epidemiologic concepts of exposure intensity, duration and frequency apply to both the workplace setting as well as potential exposures at home. The question of potential exposures associated with respirable silica taken home on uniforms by employees from the ThyssenKrupp Waupaca facilities, if they elect not to change clothes at the plant, should be addressed by applying these same concepts.

These potential exposures have been addressed by the testing and modeling by Mr. Mosher. His tests showed that when a uniform worn by a foundry employee was vigorously shaken, respirable silica could be released. Modeling of the concentration of this release into the space of a residential laundry room showed the 24 hour annual average concentration well below the California reference limit for the general population of  $3 \mu\text{g}/\text{m}^3$ . Modeling of the concentration of this release in the space of a workplace locker room showed the 8 hour time weighted average

concentration was well below enforceable or advisory occupational exposure limits for respirable silica. These test results clearly indicate that any possibly take-home exposures would be well below levels of concern. They are also consistent with the published literature in this area (Sirianni 2010, Versen 1989).

## **Comparison to Ambient Air Levels of Silica**

The simulation and modeling results by Mr. Moser can be compared to the ambient quartz found in our everyday lives. The US EPA's Inhalable Particulate Network provides a data set of quartz concentrations that were collected from high-volume or dichotomous samples of ambient aerosols in 25 US cities in 1980 (US EPA 1996). Ambient quartz concentrations collected from high-volume filter samples of total suspended particulates in 10 US cities ranged from 0  $\mu\text{g}/\text{m}^3$  (Portland, Oregon) to 15.8  $\mu\text{g}/\text{m}^3$  (Akron, Ohio) (US EPA 1996). Both of those findings were based on one sample in each city. The ambient quartz reported from the other eight cities ranged from 1.2  $\mu\text{g}/\text{m}^3$  to 13.9  $\mu\text{g}/\text{m}^3$ , with all cities other than Portland having an average concentration greater than 2.2  $\mu\text{g}/\text{m}^3$ . Thus, the modeled concentrations of potential take-home exposures, which are less than 3  $\mu\text{g}/\text{m}^3$ , fall well within the range of measured ambient exposures. This EPA report predicted that the silicosis risk for a continuous 70-year lifetime exposure to 8  $\mu\text{g}/\text{m}^3$  (estimated high crystalline silica concentration in US metropolitan areas) is less than 3%, and the lower concentrations derived from the modeling would yield an even lower risk (US EPA 1996). Each of the scenarios (laundry room, locker room) modeled by Mr. Moser, using the worst case situation, was within the range of the ambient levels reported by the EPA (US EPA 1996).

## **Conclusions**

The opinions that I am offering in this case, both as stated above and below, are based on these materials and on the scientific literature related to silica and the epidemiology of occupationally-related diseases in general. All statements made in this report are made to a reasonable degree of scientific and medical certainty. As noted previously in this report, in the event additional, relevant, information is made available to me, I reserve the right to amend and/or supplement my report accordingly.

## **Summary of Opinions**

- Showering and clothes changing at work is not mandated by OSHA regulations for ThyssenKrupp Waupaca facilities.
- The National Institute of Occupational Safety and Health (NIOSH) recommendations are simply guidelines and are advisory in nature.
- Mandatory showering and clothes changing at work by employees is not a foundry industry standard operating procedure, nor does ThyssenKrupp Waupaca have a company policy requiring the same.
- The report of silica-related lung disease by Dr. Rosenman is not supported for many ThyssenKrupp Waupaca employees after careful review of the employee medical records.



- ThyssenKrupp Waupaca has a respiratory protection program in place that is consistent with the requirements established by OSHA. In addition, the company accommodates employee requests for dust masks through a “courtesy” program in which the employees are fit tested and undergo a respiratory fit testing program on a regular basis even though such a program is not required.
- ThyssenKrupp Waupaca’s health and safety programs effectively apply a combination of strategies to protect worker health (engineering controls, workplace protection and PPE, administrative controls).
- My two on-site evaluations of the operations at ThyssenKrupp Waupaca Plants 2-3 confirm the following:
  - The presence of appropriate personal protective equipment (PPE) at or after the clock in station;
  - Workstation air supply ducts with obvious air flow;
  - Exhaust systems in place at workstations with clear indication of air movement into the ducts; and
  - Clean uniforms available in the dressing rooms along with individual lockers for storage of personal items.
- A comparison of the employee health records from ThyssenKrupp Waupaca Plants 2-3 and those pages selectively copied for Dr. Rosenman’s review were in most cases not reflective of the actual health status of the employee, his or her employment history, and his or her smoking history found in the complete employee health records.

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Sincerely yours,



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Editor, Oklahoma Communicable Disease Bulletin, a weekly publication covering current topics of public health interest. 1977-82.

Saah A, Mallonee J, Tarpay M, Thornsberry C, Roberts M, Rhoades E. "Relative Resistance to Penicillin in Pneumococcus: A Prevalence and Control Study," Journal of the American Medical Association, Volume 243, Number 18, 1980, pp. 1824-1827.

Bernard K, Roberts M, Sumner J, Winkler G, Mallonee J, Baer G, Chaney R. "Human Diploid Cell Rabies Vaccine," Journal of the American Medical Association, Volume 247, Number 8, 1981, pp. 1138-1142.

Morton D, Saah A, Silberg S, Owens W, Roberts M. "Lead Absorption Among Children of Employees in a Lead Related Industry," American Journal of Epidemiology, Volume 115, Number 4, April 1982, pp.549-555.

Vernon A, Thacker S, Roberts M, Mallonee J, Beauchamp H. "Rabies in Oklahoma: An Epidemiologic View of the Problem in Animals," Journal of the Oklahoma State Medical Association, Volume 76, Number 8, August 1982, pp. 293-299.

Helmick C, Vernon A, Schwartz S, Ward M, Roberts M. "Rabies in Oklahoma: Report of a Human Case," J. Okla State Medical Association, Volume 76, Number 8, August 1982, pp. 287-292.

Tacket C, Barrett T, Mann J, Roberts M, Blake P. "Wound Infection Caused by *Vulnificus*, A Marine *Vibrio*, In Inland Areas of the United States," Journal of Clinical Microbiology, 1984, Volume 19, pp.97-99.

Felsenfeld A, Roberts M. "A Report of Fluorosis in the United States Secondary to Drinking Well Water," Journal of the American Medical Association, Volume 265, Number 4, January 1991, pp. 486-488.

Roberts MA, O'Brien M. "Public Health and the Environment: Where Do We Go From Here?" Invited Article, Wisconsin Public Health Association Newsletter, Milwaukee, Wisconsin, March 1994.

Clarke C, Mowat F, Kelsh, M, Roberts M. "Pleural Plaques: A Review Of Diagnostic Issues And Possible Non-Asbestos Factor," Archives of Env. & Occ. Health, Vol. 61, Number 4, July/August 2006, pg. 183-192.



## **PUBLICATIONS (continued)**

Alexander D, Cushing C, Lowe K, Scurman B, Roberts M. "Meta-analysis of animal fat or animal protein intake and colorectal cancer," Am. J. Clin. Nutr. 2009;89:1-8.

## **BOOK CHAPTERS**

Roberts MA. "Role of Aviation in the Transmission of Disease," Fundamentals of Aerospace Medicine. Second Edition, 1996, Chapter 33, pp. 1003-1015.

Hudson, TW, Roberts, MA, "Corporate Response to Terrorism", Clinics in Occupational and Environmental Medicine, "Terrorism: Biological, Chemical and Nuclear, Volume 2, Number 2, February 2003, pages 389-404.

## **REPORTS/SURVEYS**

Roberts, MA, Walker F., "Cancer Cluster Investigation in Ponca City Oklahoma," Oklahoma State Department of Health, 1988, Oklahoma City, Oklahoma.

Greaves WW, Roberts MA, Moore SJ. "Investigation of Employee Health," November 1990, Modine Manufacturing Company, Emporia, Kansas.

"Medical Waste Disposal in the State of Wisconsin: A Report of the Special Committee on Medical Waste Disposal, "Report to the Wisconsin Legislature, PUBL-AM-068-91, October 23, 1991, Madison, Wisconsin.

Roberts MA. "Investigation of Suspected Building Associated Illness in a Public School Building," December 1993, Milwaukee, Wisconsin.

Roberts MA, Cohen S. "Cancer Mortality Studies of a Petroleum Refinery Employee Cohort," January 1994, Milwaukee, Wisconsin.

Roberts MA, Cohen S. "Utility of Health Surveillance in a Petroleum Refinery Employee Cohort," April 1994, Milwaukee, Wisconsin.

Roberts MA, Kitscha D & Blessinger J. "Cohort Mortality Study Update of Employees at the Velsicol Chattanooga Plant 1943-1992," Milwaukee, Wisconsin.

Fischer LJ, Bolger PM, Calson GP, Jacobson JL, Knuth BA, Radike MJ, Roberts MA, Thomas PT, Wallace KB, Harrison KG. "Critical Review of a Proposed Uniform Great Lakes Fish Advisory Protocol," September, 1995. Michigan Environmental Science Board, Lansing. xii + 62p.

Roberts MA, Kitscha D. "Evaluation of Respiratory Complaints Associated with Metal Milling Processes," Milwaukee, Wisconsin. August 1996

Roberts MA, Kitscha D. "Evaluation of Indoor Air Quality in a Public School Setting: A Case Control Study," Kenosha, Wisconsin. October 1996

"Evaluation of the Scientific Literature on the Health Effects Associated with Wind Turbines and Low Frequency Sound", prepare for Wisconsin Electrical Power Company (WEPCO), Milwaukee, Wisconsin October 29, 2009

## **COURSE STUDY GUIDES**

### ***For Distance Learning Program***

Roberts, MA, "Environmental Health: A Study Guide," Academic Program in Occupational Medicine, Medical College of Wisconsin, August 1992, Milwaukee, Wisconsin.

Roberts, MA, O'Brien, M. "Biostatistics: A Study Guide," Academic Program in Occupational Medicine, Medical College of Wisconsin, April 1994, Milwaukee, Wisconsin.

## **PRESENTATIONS**

"Preliminary Report on a Statewide Rabies Pre-exposure Prophylaxis Program," The International Northwestern Conference on Diseases in Nature Communicable to Man, August 12-14, 1974, Boise, Idaho.

"Geographical and Ecological Distribution of Rocky Mountain Spotted Fever in Oklahoma," Twenty-seventh Annual Southwest Conference on Diseases in Nature Transmissible to Man, March 10-11, 1977, Austin, Texas.

"Foodborne Illness Incidence and Investigation," National Society of Professional Sanitarians' Annual Meeting, November 1-3, 1979, Springfield, Missouri.

"A Serosurvey of Brucella canis Antibody Titers in Dogs and Their Owners," Thirtieth Annual Southwest Conference on Diseases in Nature Transmissible to Man, March 27-28, 1980, Temple, Texas.

"A Human Rabies Case in Oklahoma," Thirty-second Annual Southwest Conference on Diseases in Nature Transmissible to Man, March 25-26, 1982, Austin, Texas.

"On the Other Side of the Fence," Seventy-fourth meeting, American Occupational Health Conference, April 29-May 5, 1989, Boston, Massachusetts.

"Indoor Air Pollution - Update," University of Tulsa Division of Continuing Education and the Center for Environmental Research and Technology, May 8-9, 1989, Oklahoma City, Oklahoma.

"Issues and Decisions in Environmental Health," University of Oklahoma Academy of Retired Professors, Sept 26, 1989, Norman, Oklahoma.

"Balancing Public Health and Environmental Health," Oklahoma Society of Professional Sanitarians. October 12, 1989, Oklahoma City, Oklahoma.

"Occupational Health and Epidemiology," University of Oklahoma, College of Public Health, Alumni Day 1989, Oklahoma City, Oklahoma.

"Environmental Aspects of Economic Development: Realities vs Perceptions," Leadership Oklahoma 1990, March 2, 1990, Ponca City, Oklahoma.

"Occupational Health Team Members and Resources," Practical Approaches to Occupational Medicine, March 3, 1990, Oklahoma City, Oklahoma.

## **PRESENTATIONS (continued)**

"Putting Environmental Health Back in Public Health," South Carolina Public Health Association Annual Meeting, May 24, 1990. Myrtle Beach, South Carolina.

"Board Certification in Occupational Medicine," Industrial Epidemiology Forum, May 1990, Salt Lake City, Utah.

"Environmental Epidemiology in Relation to Occupational Medicine," Midwestern Medical Director's Association (Insurance Medicine), October 26, 1990, Wausau, Wisconsin.

"Environmental Medicine: Fact or Fantasy," Oklahoma College of Occupational Medicine, Fifteenth Annual Fall Educational Meeting, November 2-3, 1990, Edmond, Oklahoma.

"Drug Testing in the Workplace," 21st Annual Winter Refresher Course for Family Physicians, January 21, 1991, Milwaukee, Wisconsin.

"Risk Communication: Challenge of Today's Society," Oklahoma Public Health Association Annual Meeting, April 4, 1991, Tulsa, Oklahoma.

"Social, Political and Legal Aspects of Environmental Health," American College of Occupational Medicine, State of the Art Conference, Seminar Director, October 28, 1991, St. Louis, Missouri.

"Workplace Standards Applied to the Non-Workplace Population," American College of Occupational Medicine, State of the Art Conference, October 31, 1991, St. Louis, Missouri.

"Strategic Planning for the Americans with Disabilities Act," Hospital Council of Greater Milwaukee Area, Co-Director, March 31, 1992.

"Health and Safety in the Health Care Workplace," Krukowski & Costello, S.C., Guest Speaker, June 6, 1992, Oconomowoc, Wisconsin.

"Trials and Tribulations of Occupational Medicine in Primary Care," Family Health Plan's Eight Annual Family Practice Symposium, Invited Speaker, August 5, 1992, Milwaukee, Wisconsin.

"Business Partnership Opportunities in Occupational and Environmental Medicine," Discussion Leader, Governor's Forum on Technological Transfer and Business Partnerships, September 24, 1992, Milwaukee, Wisconsin.

"Effects of the Americans with Disability Act on Industry," Wisconsin State Association of Occupational Health Nurses, 6th Annual Meeting, Invited Speaker, October 8, 1992, LaCrosse, Wisconsin.

"Community TB Control: The Good, the Bad and the Ugly," American Lung Associations' conference "TB in the '90s: An Aberration or an Epidemic?", Invited Speaker, October 16, 1992, Madison, Wisconsin.

"Occupational Medicine in the Hospital Setting," Medical Grand Rounds Williamsport Hospital & Medical Center, Invited Speaker, April 16, 1993, Williamsport Pennsylvania.

"Sick Building Syndrome: Fact or Fantasy?" Milwaukee Area Medical Directors' Association, January 23, 1994, Milwaukee, Wisconsin.

Mark A. Roberts, M.D., Ph.D., FACOEM  
September 2011

## **PRESENTATIONS (continued)**

"Biological Monitoring from the Industrial Viewpoint," American Occupational Health Conference, April 15-22, 1994, Chicago, Illinois.

"Biological Monitoring," Session Moderator, American Occupational Health Conference, April 15-22, 1994, Chicago, Illinois.

"Occupational Health: Resolve to Reform," Keynote Address, Southeastern Wisconsin Association of Occupational Nurses Annual Meeting, May 11, 1994, Milwaukee, Wisconsin.

"ADA Issues in the Hospital Setting," St. Mary's Hospital Administrative Staff, January 11, 1995, Milwaukee, Wisconsin.

"Update on the Clinical and Epidemiological Aspects of Indoor Air Complaints," Indoor Air Quality Seminar, January 19, 1995, Madison, Wisconsin.

"Plugging Occupational and Environmental Concepts into Medical Schools," ACOEM Session #137, "Integrating Environmental Health into Medical School Curricula," April 28-May 5, 1995, Las Vegas, Nevada.

"Bloodborne Pathogens: The Standard and Its Implementation," Milwaukee Area Medical Directors' Association, May 18, 1995, Milwaukee, Wisconsin.

"The Clinical Importance of Sick Building Syndrome," University of Oklahoma College of Medicine, Department of Family Medicine, Grand Rounds, August 24, 1995, Oklahoma City, Oklahoma.

"Psychological Factors in Occupational Medicine and Rehabilitation," Milwaukee Psychiatric Hospital, Invited Speaker, Contemporary Issues in Mental Health and Addiction Medicine, September 6, 1995, Milwaukee, Wisconsin.

"Multiple Chemical Sensitivity," Wisconsin State Association of Occupational Health Nurses, 8th Annual Meeting, Invited Speaker, October 4, 1995, Egg Harbor, Wisconsin.

"Health Problems Associated with Pesticide Contaminated Well Water" Conference on Common Rural and Agricultural Health Problems, sponsored by the Marshfield Clinic, May 9, 1996 Madison, Wisconsin.

"Indoor Air Complaint Evaluations: An Update", Central States Occupational Medicine Association, September 28, 1996, Milwaukee, Wisconsin.

"Summer and Vacation Safety," Milwaukee Area Safety Council, May 2, 1997, Milwaukee, Wisconsin.

"Basic Safety & Health for Occupational Health Practitioners," Veterans Affairs Medical Center, September 12, 1997, Little Rock, Arkansas.

"Epidemiological Issues in Welding Fume Exposure." Harris Martin Welding Rods Conference, June 16<sup>th</sup>, 2004, San Francisco, California.

"Silica: Complex Made Simple," Ohio Association of Civil Trial Attorneys Asbestos & Silica Litigation Conference, September 29, 2004, Cleveland, Ohio.

"Diagnosing and Proving Manganese Exposure." Mealey's Welding Rod Litigation Conference, October 8, 2004, West Palm Beach, Florida.

## **PRESENTATIONS (continued)**

"Epidemiological Issues in Welding Fume Exposure." Mealey's Welding Rod Litigation Conference, November 15, 2004, New Orleans, Louisiana.

"Welding Rod Litigation: A Primer on the Legal and Medical/Science Issues," DRI Telephone Conference, March 8<sup>th</sup>, 2005, Chicago, Illinois.

"Diagnosing and Proving Manganese Exposure." ACI Second National Forum on Welding Rod Litigation, June 20, 2005, Chicago, Illinois.

"What's the Next Deep Pocket Mass Tort to Hit the Automotive Industry?" Product Liability-Hot Topics Seminar for Defense Counsel, September 14, 2005, Troy, Michigan.

"Emerging Health Issues in Welding." Chicago Section AIHA and Northeastern IL Chapter of ASSE, November 16, 2005, Palatine, Illinois.

"Rules of the Communication Road." AIHce 2007 Roundtable "Communicating Risk / Communicating Cause," June 6, 2007, Philadelphia, PA.

"Integration of Health and Productivity Programs with Safety Performance" CICI Conference, November 27, 2007, Willowbrook, IL

"Advanced Epidemiology: The Good, The Bad and The Ugly," DRI Complex Medicine Seminar, November 13, 2008, San Diego, CA

"Careers in Occupational and Environmental Health: Public Health, Corporate Practice, Academia or Consulting?" UIC Occupational and Environmental Medicine Conference, March 4, 2009, Chicago, IL

"Occupational and Environmental Health: Challenges in Public Health, Corporate Practice, Academia and Consulting?" UIC Occupational and Environmental Medicine Conference, August 18, 2010, Chicago, IL

## **POSTER SESSIONS**

Roberts MA. "TOMES/CCIS Computerized Information Systems," Health Information Technology Symposium, Medical College of Wisconsin, November 8, 1990, Milwaukee, Wisconsin.

Roberts MA, Lindemann J, Simpson D, and Tyborski M "Computerization of the Educator's Portfolio," Central Group on Educational Affairs, Innovations in Medical Education, Central Region Research in Medical Education, April 22, 1994, Chicago, Illinois.

Roberts MM, Parks TJ, Wertsch JJ, and Roberts MA, "Ulnar Sensory Responses in the Elderly", American Academy of Electromyography, Annual Scientific Meeting, September 30-October 1, 1994, San Francisco, California.

Roberts MM, Parks TJ, Wertsch JJ, Roberts MA. "Median, Ulnar, and Radial Sensory Responses in the Elderly," American Academy of Electromyography, Annual Scientific Meeting, September 30-October 1, 1994, San Francisco, California.

## **POSTER SESSIONS (continued)**

Roberts MA, Lindemann J, Simpson D, and Tyborski M "Results of Beta Testing of the Computerized Version of the Educator's Portfolio, 33rd Annual Research in Medical Education Conference, Association of American Medical Colleges, October 30-November 1, 1994, Boston, Massachusetts.

Lindeman J, Roberts M, Simpson D. The Educator's Portfolio: Beta testing of the Computerized Version, Electronic Poster Session, 28th Annual STFM Spring Conference, New Orleans, 1995.

## **ABSTRACTS**

Hegmann KT, Greaves WW, Moore SJ, Roberts MA. "Case-Control Study of Respiratory and Reproductive Symptoms at an Automobile Parts Manufacturing Facility." Accepted for Society for Epidemiological Research, June 15-18, 1994, Miami Beach, Florida.

Alexander DD, Cushing CA, Roberts MA. Quantitative assessment of red and processed meat intake and kidney cancer. Experimental Biology, New Orleans, LA 2009.

## **EDUCATIONAL ACTIVITIES**

### ***Undergraduate***

- 1992-97      Lecturer, M-3 Ambulatory Medicine Course, Topic "Low Back and Shoulder Examination"
- 1992-97      Lecturer, M-1 Gross Anatomy, Topic "Plug in Concepts related to Low Back Pain," includes a series of 4 team-taught lectures.
- 1994-97      Senior Elective Preceptor, Occupational & Environmental Medicine Medical College of Wisconsin.
- 1995-97      M-1 Mentor Program for Medical students at Medical College of Wisconsin

### ***Graduate***

- 1992-98      MPH Student Project Advisor, Distance Learning Program at Medical College of Wisconsin
- 1992-98      Epidemiology Course Coordinator and Primary Instructor, Masters Degree in Public Health (General Preventive Medicine, Public Health and Occupational Medicine) Medical College of Wisconsin, Department of Preventive Medicine, Milwaukee, Wisconsin (Ave 49 students per trimester.)
- 1992-98      Environmental Health Course Coordinator and Primary Instructor, Masters Degree in Public Health (General Preventive Medicine, Public Health and Occupational Medicine) Medical College of Wisconsin, Department of Preventive Medicine, Milwaukee, Wisconsin (Ave 36 students per trimester).



***Graduate (continued)***

- 1992-1994     Biostatistics Course Coordinator and Primary Instructor, Masters Degree in Public Health (General Preventive Medicine, Public Health and Occupational Medicine) Medical College of Wisconsin, Department of Preventive Medicine, Milwaukee, Wisconsin (Ave 34 students per trimester).
- 1992-97        Waukesha Memorial Hospital Family Medicine Residency Program, Resident supervisor for rotations in Occupational Medicine.
- 1993-97        Columbia Family Practice Residency Program, Resident supervisor for rotations in Occupational Medicine.
- 1995            Course Director and lecturer, Basic Curriculum in Occupational Medicine Part II presented to physicians attending the American College of Occupational and Environmental Medicine Meeting, October 21-22, 1995 Seattle, Washington.
- 1995-99        Lecturer, Basic Curriculum in Occupational Medicine Part II presented to physicians attending the American College of Occupational and Environmental Medicine Meetings

***CME Courses***

Video Production- "Musculoskeletal Workshop Low Back/Shoulder Exam," a one hour presentation distributed by the Division of Educational Services, Medical College of Wisconsin, 1994.

Employee Health Services in the Hospital Setting, American Practitioners of Infection Control and Epidemiology, St. Michael's Hospital, October 6, 1994.

***Educational Software Development***

Educator's Portfolio --Directed the development of a computer software package to track educational activities of faculty members

**OTHER EDUCATIONAL ACTIVITIES**

***Community Service Media Relations***

- 1994-97        Seminars and Presentations related to Media Interaction
- "Working with the Media," Medical College of Wisconsin Symposium, Milwaukee, Wisconsin, September 20, 1995.

***National Television***

Public Broadcast System (PBS) Series "The World Can Make You Sick," Milwaukee, Wisconsin, November 19, 1993.

CNN News "A Health and Safe Thanksgiving," a five part series on preparation for Thanksgiving produced here in Milwaukee and aired on nationally on CNN November 28, 1996.

### ***National Television (continued)***

TiP-TV "Keys to Good Health: Wellness Programs & Preventive Medicine," June 6, 1997, 2:00-3:30 CTD, General Electric Company, 900 sites worldwide and approximately 15,000 participants.

Educational Outreach Video Conference, Managing Your Health & Health Care Program, "Maintaining a Healthy Lifestyle," a 2 ½ hour broadcast presentation, Brookfield, Wisconsin, November 21, 1996.

Moderator, Spring Educational Outreach Program, Childrens' Health and Parenting, "Perinatal to Newborn," a 2 ½ hour broadcast presentation, Brookfield, Wisconsin, April 3, 1997.

Moderator, Spring Educational Outreach Program, Childrens' Health and Parenting, "Elementary School Ages," a 2 ½ hour broadcast presentation, Brookfield, Wisconsin, April 17, 1997.

### ***Local Television***

1994-97 Write and Co-produce twice weekly segments addressing public health and clinical issues for WITI Channel 6 TV viewing audience estimated at 37,000 in greater Milwaukee area.

### ***Print Media***

1991-97 Milwaukee Journal/Sentinel

Frequent contributor to issues related to Preventive Medicine and Public Health.

### ***Magazines***

Safety and Health, September 1994, "Does Multiple Chemical Sensitivity Exist?"

### ***Radio (Commercial and Public Stations)***

1992-97 Frequent contributor to issues related to Preventive Medicine and Public Health for the Milwaukee radio market.

WTMJ-AM 620 Noon Show "Industrial, Environmental, and Occupational Medicine," July 18, 1994.

PBS Kathleen Dunn, Kathleen Dunn Show, WHAD-FM Wisconsin Public Radio discussing "Ebola Virus in Africa."

### **PROFESSIONAL SOCIETIES**

American College of Occupational and Environmental Medicine  
Central States Occupational and Environmental Medical Association  
Chicago Area Medical Directors Association  
American Industrial Hygiene Association  
American Conference of Governmental Industrial Hygienists

### **REFERENCES UPON REQUEST**

December 15, 2011

# Dr. Roberts' History of Trial and Deposition Testimony

Date	Case Name	Jurisdiction	Attorney Name	Law Firm Name	Notes
<b>2011</b>					
December 15, 2011	Clifford Beilke and Susan Beilke, husband and wife, Plaintiffs, v. 3M Company, et al., Defendants	Washington	Carolyn Collins	Nixon Peabody	Provided deposition testimony
December 6, 2011	Jeremy Bird v. I-Flow	Minnesota	Mark Crane	Segal McCambridge Singer & Manhoney	Provided deposition testimony
October 11, 2011	Curtis Hunt and Judy Hunt, his wife, Plaintiffs, v. A.W. Chesterton Company, et al., Defendants	West Virginia	Greg Goodykoontz	Stephoe & Johnson	Provided deposition testimony
October 11, 2011	Howard E. Hughes and Betty Kay Hughes, Plaintiffs, v. A.W. Chesterton Company, et al., Defendants	West Virginia	Greg Goodykoontz	Stephoe & Johnson	Provided deposition testimony
September 30, 2011	Lynn K. Staub and John P. Staub v. Breg, Inc.	Arizona	Jenny Covington	Bowman & Brooke	Provided deposition testimony
September 27, 2011	Barbara Ann Capetillo and Efreem Capetillo v. American Honda Motor Co., Inc., et al.	Illinois	Mark Winters	Sanchez Daniels & Hoffman	Provided deposition testimony
September 6, 2011	Jacob and Norma Jager v. 3M Company, et al.	California	Carolyn Collins	Nixon Peabody	Provided deposition testimony
July 27, 2011	Richard Steiner and Christie Steiner v. Advance Auto Parts, et al.	California	Carolyn Collins	Nixon Peabody	Provided deposition testimony
May 2, 2011	Gerold Ricks and Margaret Ricks v. A.W. Chesterton, et al.	California	Carolyn Collins	Nixon Peabody	Provided deposition testimony
March 4, 2011	John A. Cowan and Thelma Cowan v. AGCO Corporation, et al.	New Jersey	Tom Sweeney	Eckert Seamans	Provided deposition testimony

December 15, 2011

Date	Case Name	Jurisdiction	Attorney Name	Law Firm Name	Notes
January 7, 2011	Ashworth & Patrick v. I-Flow et al.	Arizona	Christian Ryba	Segal McCambridge Singer & Manhoney	Provided deposition testimony
<b>2010</b>					
October 18, 2010	Richard Spencer v. Ford Motor Company, et al. defendants	California	Carolyn Collins	Nixon Peabody	Provided deposition testimony
May 14, 2010	Vicky L. Denzer, Individually and as Special Administrator of the Estate of Fay M. Denzer v. Aftermarket Auto Parts Alliance, Inc., et al.	Wisconsin	Roshan Rajkumar	Bowman & Brooke	Provided deposition testimony
May 12-13, 2010	Catherine Singer, individually and as Special Administrator on Behalf of the Estate of John D. Pender v. Brake Supply Co., Inc., et al.	Wisconsin	Johan Flynn	DeHay & Elliston	Provided trial testimony
May 9, 2010	Catherine Singer, individually and as Special Administrator on Behalf of the Estate of John D. Pender v. Brake Supply Co., Inc., et al.	Wisconsin	Johan Flynn	DeHay & Elliston	Provided deposition testimony
April 8, 2010	McLain & Hamilton v. BREG et al. / Paugh, Gibbs & Hughes v. I-Flow et al.	Indiana	Jenny Covington	Bowman & Brooke	Provided deposition testimony
March 1, 2010	Ruben Razo v. John Deere & Co., et al. defendants	California	Jack Henning	Dillingham & Murphy	Provided deposition testimony
February 15, 2010	Juan Barragan and Mercedes Barragan v. American Honda Motor Company, Inc. et al.	California	Carolyn Collins	Nixon Peabody	Provided deposition testimony
February 11, 2010	Clara Labrenz v. Allis Chalmers et al.	California	Bill Sayer	McKenna Long & Aldrich	Provided deposition testimony

December 15, 2011

Date	Case Name	Jurisdiction	Attorney Name	Law Firm Name	Notes
February 8, 2010	Lonnie Jo Kysiak, individually and as representative of the estate of Irving Hoff v. Ford Motor Company, et al. Defendants	Texas	Ron Lopez	Nixon Peabody LLP	Provided deposition testimony
January 22, 2010	Donald Smalley, et al. v. American Standard, et al.	California	Steve Celba	Celba LLP	Provided deposition testimony
January 20, 2010	Johnny Page v. Royal Crown Bottling Co.	North Carolina	Kelli Burns	Hedrick Gardner Kincheloe & Garofalo	Provided deposition testimony
<b>2009</b>					
December 14, 2009	Clark M. Tunison and Loretta Tunison, Plaintiffs, v. Baker Hughes Oilfield Operations, Inc., et al., George and Annette Morris v. Asbestos Corporation, Ltd, et al.	California	Steven Smelser	Yukevich Calfo & Cavanaugh	Provided deposition testimony
November 10, 2009	Vincent and Barbara Barnes v. Allis-Chalmers, et al.	California	Jim Osterlag	Nixon Peabody LLP	Provided deposition testimony
November 6, 2009	Application of Wisconsin Electric Power Company for a Certificate of Public Convenience and Necessity to Construct a Wind Electric Generation Facility and Associated Electric Facilities, to be Located in the Towns of Randolph and Scott, Columbia County, Wisconsin	Wisconsin	Paul Lankford	Lankford & Crawford LLP	Provided deposition testimony
November 2, 2009	Salvator and Mark Buttita v. Rapid American Corporation, et al.		Joseph Wilson	Quarles & Brady	Provided hearing testimony
October 20, 2009	William J. Goebel v. Alfa Laval, Inc., et al.	Illinois	Sam Tarry	McGuire Woods LLP	Provided deposition testimony
September 29, 2009		California	Carolyn Collins	Nixon Peabody	Provided deposition testimony

December 15, 2011

Date	Case Name	Jurisdiction	Attorney Name	Law Firm Name	Notes
September 14, 2009	Raymond Raynor v. Alfa Laval, Inc.	Illinois	Bruce Bishop	Willcox & Savage PC	Provided deposition testimony
June 22, 2009	Rodger Engler v. American Honda Motor Company, et al.	California	Stephen Corcoran	Gordon & Rees LLP	Provided deposition testimony
May 15, 2009	Michael Gaskill v. Abex Corporation, et al.	New Jersey	Virginia Leeper	Gaitan Group	Provided deposition testimony
May 12, 2009	Jimmy and Irene Snodgrass v. A.W. Chesterton Inc., et al.	California	Dan Petticord	Brzytwa Quick & McCrystal	Provided deposition testimony
March 23, 2009	Craig Steven Arabie, et al v. Citgo Petroleum Corporation	Parish of Calcasieu, State of Louisiana	Rick Sarver	Barrasso, Usdin, Kupperman, Freeman & Sarver	Provided trial testimony
January 28, 2009	Ronald E. Johnson and Maureen Johnson, his wife, Plaintiffs, vs. Anchor Darling Company, et al., Defendants.	Kanawha County, West Virginia	Ollie Harton	Hawkins & Parnell	Provided deposition testimony.
<b>2008</b>					
November 5, 2008	Troy True v. ConAgra Foods Inc., et al.	U.S. District Court, Missouri	Patrick Brookhouser	McGrath North Mullin & Kratz PC	Provided deposition testimony.
			Steven Torline	Husch, Blackwell & Sanders LLP	
November 4, 2008	Dorothy Bell, Individually and as Personal Representative of the Heirs and Estate of Wallace Bell, et al. v. A.W. Chesterton Co., et al.	Arkansas	Ed Slaughter	Hawkins Parnell & Thackston LLP	Provided deposition testimony
October 15, 2008	Dick Friend v. Baker Hughes Oilfield Operations, Inc., et al.	California	Eric Bergstrom	McKenna Long & Aldridge LLP	Provided deposition testimony
October 9, 2008	Lena DeGrasse v. Georgia-Pacific, et al.	Louisiana	Jim Hooper	Wheeler Trigg & Kennedy	Provided deposition testimony



December 15, 2011

Date	Case Name	Jurisdiction	Attorney Name	Law Firm Name	Notes
August 25, 2008	Dick Friend v. Baker Hughes Oilfield Operations, Inc., et al.	California	Eric Bergstrom	McKenna Long & Aldridge LLP	Provided deposition testimony
August 12, 2008	Harold Ashworth v. Atlas Turner, Inc., et al.	Utah	Barbara Maw	Barbara L. Maw Law Office	Provided deposition testimony
May 22, 2008	Michael Bradford and Terry Bradford, vs. A.W. Chesterton Company, et al.	California	Christopher Wood	McKenna Long & Aldridge LLP	Provided deposition testimony
May 20, 2008	John Schylaske v. Abex Corporation, et al. and Jefferson Riley, Jr. v. AC&R Insulation Co., Inc., et al.	Maryland	Sam Tarry	McGuire Woods LLP	Provided deposition testimony
April 23, 2008	David Edwin Timmons v. Bondex International Inc., et al. Defendants	Delaware	Jim Hooper	Wheeler Trigg & Kennedy	Provided deposition testimony
April 4, 2008	Steven Headly v. Ferro Corporation, et al.	Washington	Leta E. Gorman	Bullivant Houser Bailey PC	Provided deposition testimony
March 5, 2008	Richard Kenneth Raff and Shirley Mercie Raff v. A.W. Chesterton et al. Defendants	California	Jim Ostertag	Thelen Reid Brown Raysman & Steiner LLP	Provided deposition testimony
January 31, 2008	Eugene Adler v. A.W. Chesterton, Inc., et al.	Illinois	Jim Hooper	Wheeler Trigg & Kennedy	Provided deposition testimony
January 16, 2008	Daniel Mitchell v. Briggs & Stratton, Crown Equipment, and Nacco Materials Handling, Ford Motor Company, General Motors Corporation, DaimlerChrysler Corporation, et al. defendants	California	Mary Reilly & Garth Rosengren	Krieg, Keller, Sloan, Reilley & Roman	Provided deposition testimony

December 15, 2011

Date	Case Name	Jurisdiction	Attorney Name	Law Firm Name	Notes
<b>2007</b>					
October 5, 2007	Lowell Wayne Reese v. Ford Motor Company, General Motors Corporation, DaimlerChrysler Corporation, et al. defendants	Ohio	Jim Ostertag	Thelen Reid Brown Raysman & Steiner LLP	Provided deposition testimony
August 31, 2007	Franklin v. General Motors Corp., et al.	Lawrenceville, Kentucky	Eric Horne	Eckert Seamans Cherin & Mellott, LLC	Provided trial testimony
September 5, 2007	Carl Schwarber v. 3M Company, et al.	Kentucky	Adam Shadburne	Thompson Miller & Simpson	Provided deposition testimony
July 19, 2007	David Butcher v. Argonaut Insurance Company, et al.	Tennessee	Lawrence Coco	Carroll Bufkin & Coco	Provided deposition testimony
May 29, 2007	James Nelson v. Bondex International Inc. et al.	Illinois	Bruce Bishop	Willcox & Savage	Provided deposition testimony
May 1, 2007	Marion Bock v. Alfa Laval, Inc., et al.	Virginia	Bruce Bishop	Willcox & Savage	Provided deposition testimony
April 20, 2007	Kenneth Balthazar v. A. W. Chesterton Inc., et al.	Massachusetts	Bruce Bishop	Willcox & Savage	Provided deposition testimony
April 10, 2007	Galarly et al. v. United Agri Products, Inc. et al.	Illinois	Ross Johnson	Faegre & Benson LLP	Provided deposition testimony
March 22, 2007	Blackinton v. Briggs & Stratton	California	Larry Margoles	Dryden, Margoles, Schimaneck & Wertz	Provided deposition testimony
March 19, 2007	Isaiah Fenner et al. v. American Standard Inc., et al.	Illinois	Bruce Bishop	Willcox & Savage PC	Provided deposition testimony.
March 13, 2007	Eva Booher, Individually and as Special Administrator of the Estate of Buddie Booher, Deceased v. A. W. Chesterton, Inc., et al.	Illinois	Steve Celba	Celba & DesRochers LLP	Provided deposition testimony.
February 6, 2007	Susan Neas and Thomas Neas v. Fuji Hunt Photographic Chemicals, Inc. et al.	California	John J. Leonard	Jenkins & Gilchrist, LLP	Provided deposition testimony